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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/160,991	09/25/98	CHERNG	

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QM21/1106

EXAMINER PAYER, H

ART UNIT 3724	PAPER NUMBER
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DATE MAILED:

11/06/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/160,991

Applicant(s)

CHERNG ET AL.

Examiner

Hwei-Siu C. Payer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Detailed Action

The amendment filed on 7-5-2001 has been entered.

Claims Rejection - 35 U.S.C. 103(a)

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 10, 12-14, 16-22 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Brown et al. (U.S. Patent No. 4,323,756).

Baker discloses a method for forming a cutting die (see Abstract) comprising the steps of cladding a blade material onto a surface (see Fig.3) of a cylindrical die body of a material different and less harder than the blade material (see column 1, lines 48-58) to form a blade (in a pattern including intersection portions, see column 4, lines 65-67) extending outwardly from the die surface (see Fig.6); and shaping the cladded blade by electrical discharge machining (EDM), milling or grinding (see column 1, lines 61-65 and column 3, lines 50-61) substantially as claimed.

The differences between Baker and the claimed invention reside in the type of heat source used for cladding, and the type of material used for the cladding material and the die body.

Brown et al. teaches producing bulk rapidly solidified metallic articles of near-net shape by depositing multiple thin layers of cladding powder material (see column 3, line 63-65) onto a metal substrate (2) using a laser beam as a heat source. The high power density of the laser beam causes significant melting of the substrate surface (see column 4, lines 65-67). Each portion of the applied powder material is melted more than once, once upon original application and then again as that portion becomes a part of the substrate and more powder material is overlaid (see column 5, lines 1-5). This multiple melting permits some material purification since impurities may be vaporized, and most significantly, ensures the production of a pore free structure (see column 5, lines 6-9). It also provides perfect metallurgical bonding between deposited layers and promotes continuity of grain structure (see column 5, lines 9-11).

In view of this teaching, it would have been obvious to one skilled in the art to modify Barker by using a laser beam as a heat source for cladding the blade material of a powder form onto the die surface (10) for the advantages of structural integrity combined with microstructural control and the advantages of fine powder being readily available and produced of almost any conceivable alloy composition as taught by Brown et al.

It is noted claims 2, 4/12 and 10 each calls for the number of passes of the laser beam, the type of material for the cladding powder, and the hardness for the cladding powder and die body, respectively.

To select a well known metal material such as carbide for Baker's cladding material would have been obvious to one having ordinary skill in the art, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Also, the hardness selected for the cladding material and for the die body is a choice of preference and, therefore, not patentably distinct.

Further, the number of passes of the laser beam depends more upon the height of the blade desired (i.e. more passes producing higher blade) than on any inventive concept.

3. Claims 8, 9, 11, 15 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) and Brown et al. (U.S. Patent No. 4,323,756) as applied to claims 1, 10, 13 and 22 above, and further in view of Cox et al. (U.S. Patent No. 5,417,132).

Baker as modified above shows the claimed method step of forming a cutting die except it lacks the step of heat/cryogenic treating the blade.

Cox et al. teaches heat and cryogenic treating blades after the blades are shaped.

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It would have been obvious to one skilled in the art to further modify Baker by providing a heat/cryogenic treating step after the blade is shaped to harden and enhance the life expectancy of the blade as taught by Cox et al.

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwei-Siu C. Payer whose telephone number is 703-308-1405. The examiner can normally be reached on Monday through Friday, 7:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rinaldi I. Rada can be reached on 703-308-2187. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3579 for regular communications and 703-305-3579 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

H Payer
August 9, 2001


E. Rollins-Cross
Director, Groups 3710 & 3720